Handbook of Protein Sequence Analysis

by L. R. Croft
Wiley; Brisbane, Chichester, New York, Toronto, 1980
xiv + 628 pages. £38.00, hardback

This reviewer was under a first impression that two books required reading and recommending for purchase for his College library but the second one listed is a separate softback publication of the first 152 pages of the larger volume with the index added. Nowhere do the Publishers indicate this (sharp?) practice and the author in his preface to the soft book publication compounds this ambiguity by referring to '. . . the companion volume Handbook of Protein Sequences, . . .'. This review refers to the larger volume.

The first 152 pages consist of a simple and well-written introduction to the methods used in protein sequencing. A short historical review includes some interesting histograms showing the numbers of sequences published over the past 20 years. An outline of the basic strategy of protein sequencing is followed by clear accounts of the enzymic and chemical cleavage of proteins, the purification of peptides, the spinning cup sequenator, the solid-phase sequencer, the identification of amino acid phenylthiohydantoins and the use of the mass spectrometer. There are 228 references to 1978 only with full titles which makes it easy to find suitable topics, but there are no references to Methods in Enzymology (vol. 47) or the Proceedings of two International Conferences on Solid-Phase Sequencing which would have provided the reader with much additional material. (The Proceedings of the third International Conference were published in 1980.) There are few typographical or other errors. Reaction of lysine with 4-sulphophenyl thiocyanate does not improve hydrophobicity of the peptide chain (p. 61), but quite the reverse (cf. p 105).

The remainder of the book represents a tour de force with the accumulated sequences in 3-letter code (thank you) for enzymes (including 26 ribonucleases), cytochromes, ferredoxins, hormones, immunoglobulins, toxins, histones, structural proteins, 24 ribosomal proteins, 48 haemoglobins and 28 myoglobins.

There are excellent reference lists, author and subject indexes, and useful appendices with details of 141 α-chain and 146 β-chain human haemoglobin variants, amino acid replacements resulting from single base changes in the genetic code and some brief unneccesary elementary notes about named proteins which include acyl carrier protein, alcohol dehydrogenase and avidin.

Many biochemists and teachers will be grateful for this accumulated information on protein sequences, which updates previous publications by this author. However, this volume is expensive and will be purchased mostly by libraries.

The searcher for sequence information is likely to be already well versed in the field of sequencing methods and will probably ignore the first part of the book. The sequence data might have been better published separately and more cheaply.

Introduction to Protein Sequence Analysis

by L. R. Croft
Wiley; Brisbane, Chichester, New York, Toronto, 1980
xii + 158 pages. £4.95, softback

The softback volume can be recommended for undergraduates and others who wish to know the basic facts about protein sequencing methods, but it must be pointed out that some of the latest developments of the last two years in this field apparently post-date the time when this book was sent to press.

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